AMENDMENTS TO THE SPECIFICATION

Please amend the Title of the Invention at page 1, lines 3-4 as follows:

ULTRASONIC ~~FLOWMETER, METHOD OF FLOW RATE MEASUREMENT, AND COMPUTER PROGRAM PRODUCT THEREOF~~ DOPPLER SYSTEM FOR MEASURING FLOW VELOCITY AND FLOW RATE

Please amend the specification starting at page 4, line 12, to page 5, line 10 as follows:

[0008]

~~(claim 1)~~

~~The invention described in claim 1~~ One aspect of the present invention relates to an ultrasonic flowmeter to measure a flow rate of a fluid to be measured including: an ultrasonic transmitter for launching ultrasonic pulses of a predetermined frequency into the fluid to be measured in a fluid pipe from an ultrasonic transducer along a measuring line; a flow velocity distribution measuring means for measuring flow velocity distribution of the fluid to be measured in a measurement region by receiving ultrasonic echoes reflected from the measurement region among the ultrasonic pulses incident into the fluid to be measured; and a flow rate operation means for calculating a flow rate of the fluid to be measured in the measurement region based on the flow velocity distribution of the fluid to be measured,

in which the flow velocity distribution measuring means includes; a graph output means for outputting a flow velocity distribution graph displaying the flow velocity

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distribution in two axes of positions in the inner diameter direction of the fluid pipe relating

to the measuring line and fluid velocities corresponding to the inner diameter direction; and

an inner wall position calculating means for calculating the position of the inner wall with

respect to the axis in the inner diameter direction by calculating its inflection point from the

flow velocity distribution graph outputted by the graph output means, and

in which the flow rate operation means measures a flow rate of the fluid to be

measured by integral operation based on the inner wall position calculated by the inner wall

position calculating means.

Please amend the specification starting at page 7, line 23, to page 8, line 11 as

follows:

[0015]

(claim 2)

~~The invention described in claim 2 defines the ultrasonic flowmeter according to claim 1.~~

~~In other words~~ According to another aspect of the present invention, the flow velocity

distribution measuring means includes a fine adjustment input data receiver which enables to

finely adjust the inner wall position calculated by the inner wall position calculating means

by means of manual input.

This is to provide "a fine adjustment input data receiver" as an empirical correction

means to the result of automatic calculation by the inner wall position calculating means. For

instance, a function to output the inner wall position calculated by the inner wall position

calculating means on the screen as the vertical axis, and to move the vertical axis to right and

left with a cursor key and to fix it with a return key after the movement, can be also included.

Please amend the specification starting at page 8, line 19, to page 9, line 9 as follows:

[0017]

~~(claim 3)~~

~~The invention described in claim 3 takes the following configuration.~~

~~In other words~~ According to yet another aspect of the present invention, the flow

velocity distribution measuring means includes: a graph output means for outputting a flow

velocity distribution graph displaying the flow velocity distribution in two axes of positions

in the inner diameter direction of the fluid pipe relating to the measuring line and the fluid

velocity corresponding to the inner diameter direction; a manual input data receiver for

receiving manual input data regarding an inner wall position with respect to the axis in the

inner diameter direction; and an inner wall position calculating means for calculating the

inner wall position. The flow rate operation means measures a flow rate of the fluid to be

measured by integral operation based on the inner wall position calculated by the inner wall

position calculating means.

~~Claim 3 differs from claims 1 and 2, in that~~ In this variant, the calculation of the inner

wall position is not automatically performed, and operation of the flow rate is performed by

accepting manual input of the inner wall position.

Please amend the specification starting at page 9, line 10, to page 10, line 6 as

follows:

[0018]

~~The invention described in claim 4~~ Still another aspect of the present invention relates

to a method of flow rate measurement using an ultrasonic flowmeter measuring the flow rate

of the fluid to be measured including: an ultrasonic transmitter for launching ultrasonic pulses

of a predetermined frequency into a fluid to be measured in a fluid pipe from an ultrasonic

transducer along a measuring line; a flow velocity distribution measuring means for

measuring flow velocity distribution of the fluid to be measured in a measurement region by

receiving ultrasonic echoes reflected from the measurement region among the ultrasonic

pulses incident into the fluid to be measured; and a flow rate operation means for calculating

a flow rate of the fluid to be measured in the measurement region based on the flow velocity

distribution of the fluid to be measured.

In other words, this is a method of flow rate measurement executing the steps of:

graph outputting to output a flow velocity distribution graph displaying the flow velocity

distribution in two axes of positions in the inner diameter direction of the fluid pipe relating

to the measuring line and fluid velocities corresponding to the inner diameter direction by the

flow velocity distribution measuring means; inner wall position calculating to calculate the

position of the inner wall with respect to the axis in the inner diameter direction; and flow

rate operating to calculate the flow rate of the fluid to be measured by integral operation

based on the inner wall position calculated from the inner wall position calculation step by

the flow rate operation means.

Please amend the specification starting at page 10, line 7, to page 11, line 7 as

follows:

[0019]

(claim 5)

~~The invention described in claim 5 also~~ <u>Another aspect of the present invention</u>

relates to a method of flow rate measurement using an ultrasonic flowmeter measuring the

flow rate of a fluid to be measured including: an ultrasonic transmitter for launching

ultrasonic pulses of a predetermined frequency into a fluid to be measured in fluid pipe from

an ultrasonic transducer along a measuring line; a flow velocity distribution measuring means

for measuring flow velocity distribution of the fluid to be measured in a measurement region

by receiving ultrasonic echoes reflected from the measurement region among the ultrasonic

pulses incident into the fluid to be measured; and a flow rate operation means for calculating

a flow rate of the fluid to be measured in the measurement region based on the flow velocity

distribution of the fluid to be measured.

In other words, this is a method of flow rate measurement executing the steps of:

graph outputting to output a flow velocity distribution graph displaying the flow velocity

distribution in two axes of positions in the inner diameter direction of the fluid pipe relating

to the measuring line and fluid velocities corresponding to the inner diameter direction by the

flow velocity distribution measuring means; manual input data receiving to receive manual

input data regarding the inner wall position with respect to the axis in the inner diameter

direction; inner wall position calculating to calculate position of the inner wall with respect to

the axis in the diameter direction based on the manual input data accepted at the manual input

data receiving step; and flow rate operating to calculate the flow rate of the fluid to be

measured by integral operation based on the inner wall position calculated at the inner wall

position calculation step by the flow rate operation means.

Please amend the specification starting at page 11, line 8, to page 12, line 6 as

follows:

[0020]

(Claim 6)

The invention described in claim 6 An additional aspect of the present invention

relates to a program product to control an ultrasonic flowmeter measuring the flow rate of a fluid to be measured including: an ultrasonic transmitter for launching ultrasonic pulses of a predetermined frequency into a fluid to be measured in a fluid pipe from an ultrasonic transducer along a measuring line; a flow velocity distribution measuring means for measuring flow velocity distribution of the fluid to be measured in a measurement region by receiving ultrasonic echoes reflected from the measurement region among the ultrasonic pulses incident into the fluid to be measured; and a flow rate operation means for calculating a flow rate of the fluid to be measured in the measurement region based on the flow velocity distribution of the fluid to be measured.

The program product is a computer program product making the ultrasonic flowmeter execute the steps of: graph outputting to output a flow velocity distribution graph displaying the flow velocity distribution in two axes of positions in the inner diameter direction of the fluid pipe relating to the measuring line and fluid velocities corresponding to the inner diameter direction by the flow velocity distribution measuring means; inner wall position calculating to calculate the inner wall position with respect to the axis in the inner diameter direction by calculating the inflection point from the flow velocity distribution graph outputted at the graph outputting step; and flow rate operating to calculate the flow rate of the fluid to be measured by integral operation based on the inner wall position calculated at the inner wall position calculation step.

Please amend the specification starting at page 12, line 7, to page 13, line 5 as follows:

[0021]

(Claim 7)

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~~The invention described in claim 7~~ Moreover, yet another aspect of the present

invention also relates to a program product to control an ultrasonic flowmeter to measure the

flow rate of a fluid to be measured including: an ultrasonic transmitter for launching

ultrasonic pulses of a predetermined frequency into a fluid to be measured in fluid pipe from

an ultrasonic transducer along a measuring line; a flow velocity distribution measuring means

for measuring flow velocity distribution of the fluid to be measured in a measurement region

by receiving ultrasonic echoes reflected from the measurement region among the ultrasonic

pulses incident into the fluid to be measured; and a flow rate operation means for calculating

a flow rate of the fluid to be measured in the measurement region based on the flow velocity

distribution of the fluid to be measured.

The program product is a computer program product making the ultrasonic flowmeter

execute the steps of: graph outputting to output a flow velocity distribution graph displaying

the flow velocity distribution in two axes of positions in the inner diameter direction of the

fluid pipe relating to the measuring line and fluid velocities corresponding to the inner

diameter direction by the flow velocity distribution measuring means; manual input data

receiving to receive manual input data regarding the inner wall position with respect to the

axis in the inner diameter direction; inner wall position calculating to calculate the position of

the inner wall; and operating the flow rate to calculate the flow rate of the fluid to be

measured by integral operation based on the inner wall position calculated at the inner wall

position calculation step.

Please amend the specification starting at page 13, lines 6-18 as follows:

[0022]

It is possible to provide the computer program product ~~according to claims 6 or 7~~

stored in a storage medium. Here, the term "storage medium" indicates a medium which can hold a program product which cannot occupy a space by itself, and is, for instance, a flexible disk, a hard disk, a CD-R, an MO (magneto-optic disk), a DVD-R, and so on.

It is also possible to transmit a program product according to the present invention to other computers via communication lines from a computer stored the program product.

Furthermore, it is still possible to provide the ultrasonic flowmeter functioning as that in claim 1 by preinstalling or downloading, to an ultrasonic flowmeter provided whith a general-purpose computer, a program accomplishing the above described means.

Please amend the specification starting at page 13, line 21, to p. 14, l. 10 as follows:

[0023]

According to <u>one aspect of</u> the <u>invention</u> ~~inventions described from claims 1 to 3~~, in an ultrasonic flowmeter, it becomes possible to provide an ultrasonic flowmeter which can measure a flow rate more accurately by reducing an identification error when identifying the inner wall position from calculation result of flow velocity distribution.

According to <u>another aspect of the invention</u> ~~the inventions described from claims 4 to 5~~, in an ultrasonic flowmeter, it becomes possible to provide a method of flow rate measurement which can measure a flow rate more accurately by reducing identification errors when identifying the inner wall position from calculation results of flow velocity distribution.

According to <u>yet another aspect of the present invention</u> ~~the inventions described from claims 6 to 7~~, in an ultrasonic flowmeter, it becomes possible to provide a computer program product to make an ultrasonic flowmeter execute measurement of a flow rate more accurately by reducing identification errors when identifying the inner wall position from calculation results of the flow velocity distribution.

Please replace the Abstract of the Disclosure with the amended Abstract as shown on

the following page: